Public, Private and Voluntary Agencies in Solid Waste Management

A Study in Chennai City

This paper explores equity, accountability and environmental concerns in solid waste management in Chennai city. Through the study of the urban local body, a private agency and a civil society organisation engaged in this activity, the paper highlights issues related to effectiveness and equity, role of the urban poor in this service, and the relevance of an effective policy framework. In the context of increasing private sector participation in public service provision, and global awareness related to the impact of urban footprints on the planet, the study brings out some interesting lessons on the nature of public-private partnerships in SWM, and the role of the state in guaranteeing social and ecological equity and accountability. It also points to the urgent need for a change in the way the state itself approaches solid waste management, stressing policy mandates that will enforce equitable and ecologically sustainable waste management practices across the country. The study is based on qualitative research methodology, and involved in-depth interactions and discussions with residents, agency officials and conservancy workers, detailed examinations of secondary literature on SWM systems, and intensive field observation of SWM processes in the three agencies in Chennai.

KRITHIKA SRINIVASAN

In India, solid waste management (SWM) is a function obligatory on the urban local body (ULB). It is estimated by the National Institute of Urban Affairs that 20 to 50 per cent of a civic body's budget is spent on SWM [Devi 2001]. However, SWM by ULBs has been found to be largely unsatisfactory because of their poor financial health, institutional weakness, improper technology and lack of infrastructure [Barman A et al 1999]. Recent years have seen cash strapped municipal bodies gradually divesting themselves of their direct roles in provision of SWM,[1] moving towards public-private partnerships as a solution to their inability to handle conservancy operations efficiently. At the same time, there has also been rapidly growing awareness of the environmental and public health consequences of the manner in which waste has been handled till now in India, with the recent Mumbai floods highlighting the catastrophic consequences that can be wrought by a combination of apathetic urban governance and environmentally unsafe SWM.

A public interest litigation[2] in the Supreme Court, addressing the dismal situation of SWM in India, a situation in which both collection and disposal systems were woefully inadequate posing multifarious dangers to human health and the natural environment, led to the framing of the Municipal Solid Waste (MSW) (Management and Handling) Rules, 2000, under the Environment Protection Act, 1986. The MSW rules delineate systems to be set up by ULBs for managing and handling solid wastes, along with a compliance schedule, emphasising segregation of waste and its proper treatment through composting and recycling.

Chennai, the fourth largest metropolitan city in India, has a population of about 4.2 million (Census of India 2001). The garbage generation per day in Chennai is to the tune of nearly 3,500 tonnes (www.unhabitat.com). SWM is primarily the function of the Chennai corporation, and approximately 3,000 tonnes of solid waste are collected every day (www.chennaicorporation.com). In Chennai city, there are three distinctly different players in the arena of SWM – a public body (the corporation of Chennai), a private body[3] (CES Onyx, a subsidiary of m/s CGEA Asia Holdings, Singapore) and a non-profit organisation (Exnora), all operating under the overarching framework of the MSW rules.

This study, using qualitative research methodology, examines the SWM practices of these three agencies in order to delve into the complexities of the issue of SWM, trying to understand in particular, implications for civil society, for people who work with waste and for the environment. The study places a great deal of emphasis on the experience of private participation in SWM, extending its meaning to include participation by civil society. The principal objective of this paper is to examine equity (relating to access to services and roles of the urban poor), accountability (relating to provision of services, and to conditions of workforce) and ecological safety concerns in SWM, and in doing so, incorporates analyses of public, private and civil society participation in SWM in Chennai city from four angles – the quality of services offered, the conditions of the workforce, the environmental implications of the agency's operations, and the impact on the urban poor who depend on waste for their livelihoods. The activities of each agency are examined using these criteria, and this examination is accompanied by a detailed study of the India's SWM policy to understand the linkages between state policy and ground realities.

Setting the Context
Private Sector Participation

The roots of private sector participation in urban governance[4] can be traced to the 1990s when local governments in Europe, faced with the challenge of decentralisation accompanied by financial cutbacks from the centre, adopted business strategies and the partnership approach[5] for their activities, including contracting out their duties to the private (for-profit) sector, and inviting voluntary and civil society participation in the provision of services [Elander 2002]. The following years have seen the upsurge of such public-private partnerships across the world, with these relationships emerging either as a result of policy mandates, as seen in the case of privatisation of services and industries, or as a result of action from below, when civil society, in the form of voluntary organisations and community based organisations, mobilises around an issue of common concern. The public-private partnerships have been seen in diverse fields, ranging from poverty alleviation and environmental protection, to the communication and transport sectors.

In India, private participation in the public sector has taken the form mostly of privatisation of competitive public sector, manufacturing units, with partnerships in public/state services slowly gaining popularity as a concept [Batley 1996]. It is argued that provision of services by the state in a non-competitive manner leads to allocative inefficiency – services do not respond to consumers' preferences, and/or are charged at prices that do not reflect producers' real costs, and to productive inefficiency – resources are not used economically to produce a given output [Batley 2001]. Batley further proposes that state provision of services is justified only in the following cases of (a) public goods – goods and services for which it is not possible to charge in proportion to consumption, for example, street lighting; (b) incomplete or non-competitive markets – for instance, where the investment is so large that it eliminates competition; (c) when costs and benefits of consumption for those who lie beyond the reach of the market will be ignored by the private sector – for instance, in the case of industrial pollution, non-consumers pay the price of other people's consumption; (d) merit goods – those that are defined in any society as basic conditions of citizenship, irrespective of ability to pay.

SWM, an urban basic service, does not fit exactly into anyone of the above categories. Waste collection, for instance, is not a public good as it is possible to charge users and exclude non-users. However, the negative externalities of uncollected waste, and the possible inability of low-income households to pay for the service may necessitate ULB intervention, at least in ensuring provision. Waste disposal, on the other hand, may require total state control, as it is a public good [Batley 2001].

In the field of SWM, evidence [Bartone 2001] seems to indicate that service efficiency and coverage is often enhanced by private sector participation. However, Batley (2001) notes that it is not possible to generalise such findings. Further, it is emphasised [Batley 1996], that in most efforts at privatisation of urban services in developing nations, the state does not move away from its role completely – roles only change, with the state taking on different responsibilities with regard to ownership, operation, control and regulation. In addition, Baud et al 2001, in Post et al 2003, point out that appraisals of private sector participation in SWM have not paid much attention to both labour conditions of conservancy workers in private agencies and ecological considerations.

The private sector participation in SWM includes decentralised, community-based initiatives that typically are spontaneous responses to ineffective SWM by the ULB. A lot of faith has been placed in the concept of community participation to overcome the inadequacies and evils of both state and private (for-profit) intervention in SWM, and these are seen as ideal models for environmentally safe handling of waste, as externalities are supposed to be greatly reduced in localised systems. Such civil society initiatives that intervene in public services imply changing relationships between the people and the state – civil society begins to involve itself in active governance, when it takes on provision of basic services like SWM that are obligatory on the state.

Evidence [Dahiya 2003; Muller et al 2002] shows that civil society organisations can be quite successful in managing waste locally and that they have enormous potential to introduce environmentally safe practices. Yet CBO and NGO experiences in SWM have not been all positive, and even the best ones are prone to hiccups at every stage.

SWM in Chennai City
Public, Private and Civil Society Players

A Bird's-Eye View of SWM in Chennai

For administrative purposes, the Chennai municipal area is divided into 10 zones that are further divided into several divisions or wards. The SWM department of the corporation of Chennai (ULB) is responsible for conservancy operations, with the collected waste being routed through transfer stations to one of the two disposal sites[6] in the city. The conservancy services in notified slums are provided by the Tamil Nadu Slum Clearance Board (TNSCB).

In 1996, the government of Tamil Nadu, then led by the Dravida Munnetra Kazhagam (DMK), directed the Corporation of Chennai to introduce private participation in the collection of solid waste to enhance efficiency and quality of services and bringing in the extra resources required for the same. In order to facilitate privatisation of SWM, the state government, at the behest of the corporation, passed an order exempting the corporation from the provisions of the Contract Labour (Regulation and Abolition) Act, 1970.[7] Despite strong protests by conservancy worker unions, the final contract with Onyx was finalised for privatisation of SWM in three zones – 6, 8 and 10 – for a period of seven years (2000-07), and included collection, transport and disposal of the MSW[8] at the disposal sites. The selection of zones to be privatised was done in such a manner to include different types of areas – low and high income, residential and commercial, etc. Currently, Onyx is responsible for SWM operations in zones 6, 8 and 10, while the corporation handles SWM in the other seven zones. Both the corporation of Chennai and Onyx do not offer SWM services in notified slums – as mentioned earlier, these come under the purview of the TNSCB.[9]

Several years before these developments, in 1989, Exnora was founded in response to the corporation's inability to effectively manage solid waste[10] in Chennai. Exnora introduced the concept of people's participation in SWM by forming community-based organisations (CBOs) that would independently manage conservancy services in their locality, with the parent body playing an advisory role. Typically, CBOs affiliated to Exnora hire waste collectors to do door-to-door collection of waste. The households

in the locality pay a monthly fee for SWM services. The concepts of the 3Rs (reduce, reuse and recycle), source segregation of waste and composting of organic waste were introduced to incorporate environmentally sustainable management of waste. Another major innovation brought around by Exnora was the integration of waste pickers/rag pickers into the mainstream by hiring them as waste collectors (called street beautifiers).

The notification of the MSW (Management and Handling) Rules, 2000 brought about a whole new dimension into the management of solid waste in Chennai – that of environmental considerations. While the Madras Municipal Corporation Act, 1919, continues to govern the corporation, the MSW rules prevail over the state enacted 1919 act in so far as SWM is concerned.[11]

After the notification of the MSW rules, some changes were brought about in the corporation's SWM systems. To begin with, door-to-door collection of waste was introduced in select areas in July 2003 and was expanded to cover the entire city by January 2004. Community bins were removed from most parts of the city. It must be noted here that all these interventions were implemented only in the zones serviced by the corporation.

Source segregation was introduced in one street in one division from each zone from January 2004. Segregation was made compulsory from December 2004 onwards. As of December 2004, mixed refuse is not accepted by the corporation, and an administrative charge was imposed on people who do not hand over their garbage to the waste collector to deter them from dumping it on the roadside.

Centralised facilities for composting and recycling have not been developed yet, except for one compost pit in each ward. The conservancy workers are allowed to remove saleable waste from the garbage collected and sell it for proceeds. The remaining waste goes to the dumping ground like earlier. There have been no initiatives to upgrade the dumping grounds to sanitary landfills so far.

In the zones handled by the private company, segregation has not been enforced as the company states that its contract[12] does not cover management of segregated waste. Therefore, as of now, segregation in zones 6, 8 and 10 happens only on a voluntary basis. The citizens have been requested to separate their inorganic waste and hand it over to the corporation worker who is to come for collection twice a week on specified days. The rest of the waste is to be disposed off in the private company's bin or to be handed over to their collection vehicle.

Efficiency and Effectiveness

The handing over of SWM operations to the private agency in select zones of Chennai city seems to have brought about some positive changes, at least in terms of effectiveness of SWM operations and cleanliness levels of neighbourhoods. The residents across the three zones, which were earlier serviced by the corporation, were of the opinion that the private company's performance in SWM is better than that of the corporation's. This is attributed to better equipment, monitoring and supervision systems, younger workers and more stringent enforcement of performance norms for employees in Onyx. This opinion is also substantiated by data on average waste removed per day per zone by each organisation during the years 2000 to 2004. Onyx's collection rates have been consistently higher than that of the corporation's in this period.

However, there is also a feeling among residents that Onyx's performance has slipped over the years, with SWM operations not being as effective now as they were in the beginning. Two reasons can be suggested for this change: (a) the company is fairly certain that the political atmosphere[13] in the state will not permit the renewal of its contract (which comes to an end in 2007), and therefore there is no motivation to maintain performance standards (b) The corporation's policing of the private company has come down over the years, with a tendency to "take it easy" coming over Onyx. A third, quite different reason put forth by workers with Onyx is that monitoring and supervision have become lax after worker unions were formed and gained power in the company, leading to a direct fall in the quality of SWM operations.

The last few years have seen a remarkable improvement in the quality of the corporation's SWM operations in zones 1-5, 7 and 9. The literature documenting private sector participation in SWM [Baumol and Lee 1991; Bartone 1991; Batley 1996, 2001] across the world suggests that the competition is needed for efficient private sector participation in SWM. This seems to apply to the public sector too – competition offered by another player in the field (in this case Onyx), seems to be incentive for the ULB, which till then had monopoly control over the service, to literally "clean up its act". In the Indian context, though, it is also likely that the recently notified MSW rules have influenced the improvement in the corporation's SWM operations.

One major fallout feared whenever private sector participation is attempted is the exclusion of the poor. Batley 2001, has noted that private players perform "better" than public service providers as they are usually allocated easier sectors of the market/richer areas with easier access, and where waste generation is high, while ULBs are responsible for low-income areas where collection is difficult and generation levels are low. Despite allegations to this effect by certain groups,[14] the case does not seem to be the same in Chennai, as the three zones allocated to Onyx have a mixture of low-income and high-income localities, markets and commercial areas, etc. It is, however, true that all the zones are found in the southern part of the city, though what bearing this may have on case of provision of services is not certain.

This study also shows that while cleanliness levels are certainly higher in upper income localities (this is seen all over the city, in both corporation and Onyx zones), the servicing of low-income settlements by Onyx is as regular and thorough as in upper income ones. In fact, low-income settlements in Onyx zones appear to be better serviced than the same in corporation zones. The residents from different income groups in Onyx zones report less disparity among their neighbourhoods than residents from different income groups in corporation zones. Nevertheless, it is important to remember that Onyx's payment is based on collection tonnage (adequate motivation for increased collection), and that there are no user fees involved. If Onyx's services were contingent on a resident's capacity to pay for them, then it is likely that equity concerns would be more visible. This is a strong case for the corporation not to withdraw[15] completely from SWM, continuing to retain ultimate responsibility and accountability for the service, taking it on as an obligatory function necessary for public health. The duty of indirect provision, i e, ensuring[16] that the service is available to all, must rest with the state.

When one tries to look at efficiency of SWM operations, while productive efficiency[17] might seem to be better in Onyx's operations, when the entire city is taken as a whole, the financial viability of SWM operations may need closer examination. Even

if Onyx is capable of collecting waste at a lower cost per tonne, it must be kept in mind that the corporation acquires additional expenses in terms of establishing monitoring and supervision systems. It also has to support its entire workforce even though its direct involvement in SWM has reduced.[18] In addition, Onyx's greater effectiveness in waste collection means that the corporation's net expenditure on SWM may have shot up, as Onyx's payment is based on tonnage.

When it comes to civil society participation, in its early years, Exnora was considered to be a great success, with most of the CBO driven waste management systems having a common impetus behind their initiation – they were responses to the gaps in SWM services offered by the corporation, often crisis situations that required self-help in conservancy operations. Exnora CBOs were able to keep garbage off the streets, and make sure that the neighbourhood was clean, certainly an accomplishment when one considers the situation that existed before. However, as time passed, it started becoming clear that all the CBOs were not capable of maintaining operations consistently. Conversations with some residents, who were earlier members of an Exnora CBO, revealed that the inability to monitor operations consistently often meant that waste collection services were as irregular and ineffective as those of the corporation.

The CBOs were also not capable of operating completely independent waste management systems, and require much support from the ULB – for instance, to collect left over waste, to allocate space for composting, etc. A strong relationship between the CBO and the ULB is necessary for effective functioning. The incentives and support offered by the ULB or any other public body to the CBO for implementing effective waste management also goes a long way in motivating residents to cooperate.[19] However, it must be noted that quite a few Exnora CBOs continue to function to the satisfaction of their members even today, several years down the line.

All the CBOs studied were in middle or upper income localities – such initiatives were hard to come by in low income localities, where probably the struggle for daily existence does not allow the residents the luxuries of time and resources to work for cleaner and healthier neighbourhoods.

Out of CBOs studied, those that have been successful seem to be propelled by highly motivated, charismatic individuals (women,[20] in two cases out of three) who are willing to take on any challenge that comes their way. These leaders also appear to have held positions of power in the local community prior to formation of the CBO. Usually, in most cases, there is a tendency to look at CBO work as something that is to be done when one has free time – as an extra "voluntary" task that one is not prepared to commit fully. When such attitudes prevail, systems usually collapse, without anyone to run and monitor them on a full time basis. Muller's study of the UWEP/CEE programme in Bangalore substantiates this observation – the study showed that CBO members are able to take on voluntary tasks say, like awareness campaigns, but are not in a position to take on managerial roles like handling SWM operations or resolving labour issues.

The entry of Onyx in zones 6, 8 and 10 has led to the folding up of many Exnora CBOs that were previously functioning to fill in gaps in the corporation's services.[21] Similar situations face Exnora CBOs also, given the greatly improved services offered at present by the corporation, particularly door-to-door collection. In fact, a CBO leader (from a corporation zone) expressed his concerns regarding the corporation's attempts to introduce door-to-door collection in his locality, and said that the CBO was actively resisting these efforts. It was his opinion that initiatives like Exnora fostered a spirit of participation, and encouraged people to take responsibility for themselves and their city – this spirit would disappear if the corporation took over the waste management services, and citizens would stop being accountable to themselves, and in addition, lose a base for mobilisation around even other issues.

Conservancy Workforce and Other Waste Workers

The very nature of work in the field of SWM is hazardous and conservancy workers face constant dangers related to their health and physical well-being. Previous experiences with private sector participation in SWM in India[22] have shown that the employment conditions of the workforce in private agencies are lacking severely in job security and basic entitlements.

In Chennai, however, the experience has been quite different, at least in terms of working conditions and worker safety. The private company, Onyx, does not take on any casual (daily wage) employees, and all workers on its payroll[23] are entitled to several benefits like PF, ESI, paid leave, bonuses, etc. The company provides regular vaccines, uniforms, protective gear and washing facilities to all its workers and strictly enforces use of the same. Manual handling of waste is prohibited. Training is given to workers on safe driving, correct handling of equipment (to avoid problems like shoulder or back pain), etc, and any violation of safety procedures and protocol is taken seriously.

It must be noted here that the experience of private sector participation in Chennai has been significantly different from other instances in India, in that here it is one company that has taken over SWM operations in specified zones, being responsible for all aspects of SWM except for landfill maintenance. The previous experiences have all involved contracting out only certain aspects of SWM operations, for instance, only collection or only transportation, to a number of small contractors who operate with casual employees, outside the purview of any regulatory frameworks with respect to labour. The fact that this is a registered company, with an international image to uphold, may have played a vital role in influencing the nature of its employment conditions.

On the other hand, it is the lot of the workforce at the corporation that is particularly appalling in Chennai. Only the permanent workers are entitled to any benefits, uniforms or protective gear, and even they rarely receive and use[24] any of it. The consolidated workers and daily wageworkers who constitute a substantial[25] part of the corporation's workforce are the worst affected, receiving low salaries, and absolutely no benefits. They do not wear uniforms (permanent workers, too, are rarely seen in uniforms, and often do not receive new uniforms for four years at a stretch) and handle waste with bare hands[26] (injuries are common, as are tuberculosis and other respiratory problems). The budget deficits in the ULB are quoted often as the reason for the corporation's inability to provide its workers with these basic necessities.

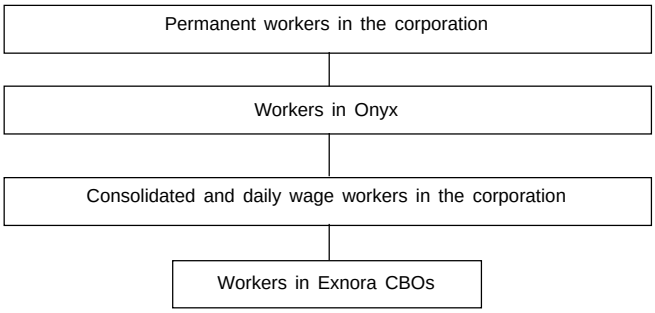
The issue of permanency is something that is very important to conservancy workers in both agencies, and all covet a position with the corporation for the security it offers. Many of the people who enter conservancy work have traditionally been in this occupation, and lack of other skill sets and education makes it

difficult for them to get alternative employment. Therefore, a job that assures a steady income for one's lifetime is held at premium.

CBO ventures also have implications for the workers employed in them. There are no rules or regulations governing working conditions in CBOs, and typically, workers are employed at low wages with no protection whatsoever – physical (gear) or financial (medical allowances). The CBO has no formal accountability towards the workers, even if they fall sick or injured, during the course of their work, making their situation highly vulnerable. CBOs would just move on to employ someone else, and the repercussions of this would affect not only the worker, but also his dependents (all workers in Exnora are men). Working with waste being so obviously hazardous, the question of responsibility of the employer towards the worker through basic benefits built into the remuneration package itself, as well support in times of emergencies, are both critical to worker welfare. This, however, is totally lacking in CBO ventures in SWM, and is an issue of major concern.

If one looks at the circumstances of different categories of workers in the three agencies, a hierarchy of worker well-being presents itself:

Hierarchy of Worker Well-Being



While at first glance, it seems like the hierarchy would influence worker's choice of organisation for employment, in reality, every worker – permanent, consolidated and daily wage corporation employees and workers with Onyx and Exnora – aspires to work with the corporation, and not with the private agency. The hope of permanency outweighs other considerations like personal safety and health, and working conditions, making all workers in this field covet a position – even daily wage or consolidated – in the corporation.

The discussions on permanency with corporation and Onyx workers bring up some very thought-provoking observations. While lobbying for permanent positions for themselves, they are quick to condemn permanent corporation employees as shirking work, and resorting to malpractices like bribing to avoid a day's duty. Many workers are of the opinion that the low quality of services offered by the corporation is because of this – the workforce is large, but does not work. Both permanent and consolidated workers agree that once a worker is granted permanent status, she/he tends to shirk work. The consolidated workers complain that they are overburdened because of this practice, and that most of the work falls on their shoulders in the end. They are also typically assigned unpleasant tasks.

The labour activists[27] hold that that ULB workers stand to be displaced by the entry of private players. In this instance, however, labour legislation has ensured that none of the corporation workers have been laid off or transferred to the private company either. Nevertheless, fresh recruitment to the corporation has stopped, though this has been the case since even before (May 4, 1999) the entry of Onyx.

The entry of the private agency, Onyx, in zones 6, 8 and 10 has had definite negative impacts on the livelihoods of itinerant waste pickers who operate in these zones. Just the fact that waste does not remain accumulated on the roads for long periods means that their access to this waste is drastically reduced. Their incomes have dropped over the last five years and some efforts on their part to find a place within Onyx's system have not borne fruit so far. In addition, workers employed with the Exnora CBOs have been directly affected by Onyx's entry as they were left without jobs when the CBOs stopped SWM operations.

The itinerant waste pickers will also be affected by the implementation of door-to-door collection and source segregation by the corporation in the other zones, as mixed waste will no longer be available on the streets. As the MSW rules are implemented more thoroughly, the condition of this section of the urban poor is going to become increasingly vulnerable.

Compliance with the MSW Rules: Environmental Concerns

Even though Onyx has the capacity and know-how[28] to implement environmentally safe management of waste, they continue to refuse to follow the MSW rules unless the contract with the ULB is amended to compensate them for the extra costs that would be incurred if they were to implement segregation systems. It must also be emphasised that under the present contract, there is no incentive for Onyx to implement source segregation of waste as its collection tonnage would come down, affecting its profits. Therefore, a revision of the contract to make it more suitable to the laws of the country is an urgent requirement.

The corporation's efforts at complying with the rules seem to have been progressing at a modest pace at best, with waste still being disposed in open dumpsites. It must be noted that the deadline of December 31, 2003 for complying with the requirement for waste processing and disposal facilities has long since passed.

When it comes to Exnora, despite their organisational mission of implementing environmentally safe systems of waste management, except for two instances, the CBOs do not seem to have gone beyond the level of waste collection. Many of them have attempted introducing source segregation and composting, but had to stop operations after a while because of lack of cooperation from other residents in the neighbourhood. Therefore, even CBO initiatives are restricted to just collection and relocation of waste.

One possible reason why CBO initiatives are not successful in practising segregation and composting (one of Exnora's main organisational objectives), and why they have failed to take off on a larger scale, could be their voluntary nature. There are really no means of enforcing certain systems on a large number of self-willed individuals, other than depending on their desire to cooperate. Matters are complicated further by the fact that CBO office bearers share relationships with people in the community other than in the capacity of a CBO member, and therefore imposing

certain systems like segregation, or collecting membership fees may result in uncomfortable situations.[29]

Equity, Accountability and Ecological Safety Experiences with Public-Private Partnerships

ULB and Private Sector Participation in SWM

The experience of private sector participation in SWM in Chennai city has been a mixed one. It does appear at the outset that the private sector has been able to step in where the ULB failed to deliver, and perform the function, at least at the superficial level of collection and transportation, quite effectively and efficiently. Equity and accountability concerns have not so far become major issues, with the company having paid a fair amount of attention to worker safety, and with disparities in services offered to low and upper income localities not being very stark.

Nonetheless, several areas of grey still remain. One is the question of financial sustainability of the agency's operations, as the system of payment by tonnage definitely must be a large burden on a ULB that already claims to be cash strapped.

Secondly, the agency's response to the ecological safety aspects of SWM has not been satisfactory, with it refusing to follow even the MSW rules without amendment of the contract. However, the onus is on the corporation, being directly accountable for SWM, to enforce the country's legal framework on the private agency. The corporation and state government do not seem to have concerned themselves much with this – in fact, even their performance on this front in terms of compliance with the MSW rules is sadly inadequate.

With regard to labour issues, when it comes to employment conditions, the private company seems to have learnt from previous experiences – its own, and those of others – and exhibits a fair amount of concern for worker safety and health, backed up by policy and protocol. The plight of conservancy workers in the corporation, however, is inexcusable. The conservancy work is deemed an essential service, on par with medical services, and the starkly different treatment meted out to conservancy workers smacks of injustice.

The question of permanency continues to be a confounding one. Worker vulnerability is definitely reduced when a job is permanent in nature, like in the ULB. However, like even workers admit, the status of permanency seems to have a direct, negative bearing on the performance of the worker, impinging directly on the quality and sustainability of the services. The power relations between different categories of corporation workers influence task allocation and performance, with the impunity that apparently goes with a permanent status, and the lack of bargaining power associated with a consolidated or daily wage status, resulting in unfair practices, and the consequent fall in worker morale. At the same time, no system that permits casual hiring and firing of workers can ever be condoned. A way out needs to be forged, one that ensures worker performance even when job security is assured. Some work in this front is being done by unions of conservancy workers like the Kachra Vahatuk Shramik Sangh (KVSS) in Mumbai, where the union takes the responsibility of monitoring the performance of the workers it represents. Their task has not been easy, as conversations with KVSS union leaders reveal, but efforts in this direction certainly promise to be a possible way out of this conundrum.

Like mentioned earlier, Onyx's participation in SWM has been very different in nature from other experiences in India. It is necessary that casual forms of public-private partnership like what exist in Hyderabad and Mumbai be avoided for reasons of equity and accountability. Further, in any case of private participation, particularly in the case of an essential service like SWM, it is imperative that the ULB continue to play a principal role in setting standards, monitoring, ensuring equity, accountability and ecological safety, and above all, retaining ultimate responsibility for the service – being capable of offering competition to the private player, possessing the technical know-how and systems for effective monitoring, and being prepared to step in, during times of crisis and need.

Civil Society Participation in SWM

When one considers civil society initiatives in SWM, they too can be viewed as a form of privatisation – informal or unintended[30] privatisation – in which the failure of public services leads private bodies or communities to step in. While such an initiative is certainly laudable, to what extent it can be counted upon, to take on the public body's role is still questionable. CBO ventures still need back up services by the ULB. They are also highly dependent on the capacity of the leadership to sufficiently motivate people to cooperate. In addition, in this study, it appears that CBO initiatives in SWM come up only in middle or upper income areas, probably because they require a certain level of financial involvement by the members. Hence, it is neither practical nor equitable to view them as alternatives to state involvement in the provision of SWM services.

The CBO initiatives in SWM have been largely ignored by any regulatory or monitoring framework that looks into worker interests and ecological concerns in SWM. It is necessary that even these forms of informal privatisation come under the purview of norms and standards that need to be followed in SWM operations as the nature of the work, and the consequences of its improper implementation could have remained the same regardless of the type of agency involved.

A point for consideration is that CBOs could take on newer roles in this arena, facilitating effective service delivery by public or private agencies, and monitoring the same to ensure accountability. CBOs could also contribute by nurturing civil society cooperation for ecologically safe management of waste, and by ensuring compliance with the systems put in place by the servicing agency.

Environmental Concerns in SWM

As was seen in the study, waste management in Chennai city as a whole requires complete revamping, if environmental concerns are to be addressed at all. Despite the corporation's efforts to implement the MSW rules, waste is still being burnt and disposed off in dumping grounds and in water bodies. It is important to understand that landfills, in addition to public health and ecological impacts, have equity concerns too, as it usually only the poor who are found in settlements near landfills – the poor do not have bargaining power, and the NIMBY (not in my backyard) syndrome ensures that disposal sites are not identified within the city, particularly in upper or middle income areas.

An effective implementation of the MSW rules (the least the

corporation needs to do urgently to address environmental concerns) would necessitate the incorporation of enforcement mechanisms like fines. This in turn requires political will. The awareness programmes also need to be designed more carefully so that the public understands the rationale for the new systems, and is clear about the manner in which they work, and people's role in them.[31]

In many cases, people who are willing to segregate complain that even if they do so, the corporation's collection systems do not retain the segregation, thus discouraging them from continuing with the practice. To avoid this, the corporation needs to first set up collection systems all over the city (both door-to-door and community bins) that have provisions for segregated waste before enforcing the practice. This is particularly necessary in low-income[32] areas where there is usually no space within the house to store waste even for short periods of time. In these areas, specially designed community bins for segregated waste are mandatory. The SWM system should also include regular door-to-door collection, provision of bins for household use and regular clearance of community bins, backed by educational programmes to teach household members how to manage waste. In addition, economic incentives[33] for segregation (like a guaranteed market or purchase agreement for compost/pure organic waste or recyclables) may encourage effective source segregation.

It is also essential that conservancy workers[34] are given the requisite training and comprehend the need for environmentally safe management of waste, as the entire system is contingent upon their cooperation. They can also serve as very effective vehicles for imparting awareness to the public as they are the one who come in contact with waste generators on a daily basis. The conservancy workers must also be made to see that systems that incorporate segregation would be far safer for them – incidents of injuries and manual handling of wastes would come down. In addition, it is vital that designing of new SWM systems is done with the involvement of and inputs from conservancy workers, as they are the most conversant with ground realities – for instance, most workers were of the firm belief that imposition of fines for non-segregation or littering is necessary.

The concept of user fees can be explored to as a means of reducing generation[35] of waste, and to inculcate a sense of responsibility in the waste generator. Introducing user fees may also have the effect of making the public demand safe and effective SWM operations from the service provider, giving them the authority to hold the agency accountable for improper SWM, as they now are consumers in the true sense of the word. While SWM is an obligatory function of the ULB, the fact that it is available for free leads most people to take it for granted, and perceive[36] waste as something that does not concern them. One thing that must be kept in mind when it comes to user fees is equity – for the poor,[37] for whom daily existence is a struggle, SWM is not high on the list of priorities. The user fee protocols that do not recognise this may result in their (the poor's) exclusion from the SWM system.

Role of Policy

At a larger level, changes are needed in the manner in which current legislation on solid waste views its management. The Municipal Solid Waste (Management and Handling) Rules, 2000 suffers from serious shortcomings.[38] Experiences in SWM in Chennai and other parts of the country and world point to the need to incorporate several changes in the MSW rules to have a truly progressive policy.

(a) The policy's focus on disposal must change to management by reduction, reuse and recycling.[39] The rules must lay the onus on a range of actors – the producer, the consumer, the recycler and the municipal authority – to reduce and manage waste [Gupta 2001]. The technologies like incineration, pyrolysis, pelletisation and other waste-to-energy alternatives must be given no place in the MSW rules as they are not only highly polluting, with incorporation of adequate pollution control measures[40] escalating costs to unsustainable levels, but also remove waste from the recycling chain that is a source of livelihood for the urban poor.

(b) The policy framework must integrate existing informal systems[41] of recovering recyclables from waste, giving waste collectors, rag pickers and conservancy workers primary roles in the resource recovery process.

(c) The concept of extended producer responsibility[42] (EPR) should be incorporated in the MSW rules to ensure that producers remain responsible for their product till the end of its life cycle. Often, if producers are required to take responsibility for the ultimate disposal of the product, in order to avoid costs related to safe disposal, they ensure that the product is engineered in a less environmentally hazardous manner, or often stop producing goods dangerous to the environment.

(d) The MSW rules must incorporate provisions that promote reuse practices. These can include creation of waste exchanges for industry and domestic markets,[43] and using product labelling as a strategy to promote reuse and recycling.[44]

(e) Community participation in SWM can be elicited through comprehensive awareness programmes, and by introducing economic incentives for segregation. At the same time, for this, it is necessary that the rules include stringent penalty clauses for non-compliance – at the individual generator, ULB and state government levels. Special provisions for slum and low-income communities must be made to facilitate compliance.

(f) Incentives for initiatives by CBOs will promote decentralised SWM ventures. The policy must also make it mandatory for the ULB to offer complete support for all CBOs that wish to take up such initiatives. CBO ventures must be required to meet certain standards with regard to the ecological safety of SWM operations and working conditions of employees.

(g) The policy must make provisions for community involvement in public-private partnerships in SWM. The systems that incorporate social, environmental and financial monitoring and auditing of the private agency's operations by citizens' groups must be mandated by the policy. The nature of public-private partnerships must be defined to ensure that ecological, equity and accountability concerns are addressed.

(h) While the rules mention that manual handling of waste is to be prohibited, far more attention to the health hazards faced by conservancy workers (in all sectors – public, private and voluntary) and waste pickers is required. At the least, the MSW rules must list the precautions that need to be taken while handling waste, and mandate that equipment and protective gear be given to conservancy workers, specifying minimum requirements to be met.

Concluding Remarks

Solid waste management, typically perceived as a straightforward public health service to be provided by local admini-

strations, is, in reality, a complex, multilayered issue. At one level, efficiency and efficacy of service provision have significant implications for public health and sustainability of operations, and recent years have seen private sector participation being explored as a means of enhancing service provision. The aspects that have received far less attention, but are of equal or even greater importance, include ecological and worker safety, and equity in service provision. This study is essentially an attempt at a holistic examination of SWM, analysing these crucial issues to derive lessons for policy and action.

The private sector participation in SWM, as in most other areas, is a difficult and contentious issue. This study reveals that there is a strong case for moving away from the traditional polarisation between champions of privatisation on the one side and those advocating complete state responsibility on the other, towards a more fruitful partnership. At the same time the overall context – liberalisation, privatisation, globalisation and the changing, in some cases diminishing, nature of state intervention – in which these partnerships are emerging, gives rise to concerns regarding the accountability of both the public and private sectors.

The study clearly shows that the public sector, on its own, has not been able to respond effectively to the SWM challenge. On the other hand, it also clearly shows that private and civil society participation also pose several challenges especially in terms of equity and accountability. Further, it also emerges that the nature and efficacy of civil society responses to SWM problems is shaped by a host of local conditions and variables, quality of volunteers and leadership, and most importantly the response of the ULB.

In addition, the study indicates that while ecological considerations are slowly gaining ascendance in SWM policy, certain sections of people continue to remain missing from the larger SWM discourse – these are the conservancy workers, people who work on the dumpsites and on the streets, as well as the urban poor for whom SWM is a luxury that they cannot afford to spend time, effort or money on. The study points to the pressing need for an inclusive policy that addresses these concerns as well.

The key lesson that Chennai has to offer is that while crucial roles exist for the private sector– for-profit and not-for-profit – the intervention of the state and public policy is imperative to safeguard ecological and equity interests, and enable greater accountability of both public and private actors. This lesson is of relevance not only to the SWM arena but also to a broader range of concerns surrounding initiatives such as the "Shanghaisation" of Mumbai, debates around which are becoming increasingly significant after the July 2005 floods.

As Drèze and Sen (1995), point out with respect to the liberalisation debate, it is not the question of more governance or less governance, or of more market or less market, but of going beyond the market. This study of SWM in Chennai clearly establishes that it is not a question of expanding or restricting private sector participation but of going beyond it. It is important to focus on the ends, i e, ecologically safe and equitable solutions to the problem of SWM, rather than EPW on the question of more or less private sector participation.

Email: krithikasrinivasan@yahoo.com

Notes

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1 This trend is seen not only in the arena of SWM, but also in many others such as water supply, electricity, transport, etc.
2 Almitra Patel vs Union of India, Writ Petition (Civil) No 888 of 1996, Original Civil Jurisdiction, February 15, 2002.
3 Chennai is the first Indian city to contract out municipal solid waste management services to a foreign agency, a move that is consistent with the increasing trend to privatise services previously under the sole purview of the state.
4 Urban governance includes a wide range of activities in areas such as social welfare, environmental protection, education, physical planning, etc [Elander 2002].
5 Partnership in urban governance as defined as "a coalition of interests drawn from more than one sector in order to prepare and oversee an agreed strategy for the regeneration of a defined area" [Bailey et al 1995].
6 The disposal sites at Perungudi and Kodungaiyur are open, low-lying marsh lands found on the borders of the city.
7 This act prohibits the employment of contract labour system in the processes of sweeping and scavenging in establishments or factories that employ 50 or more workers.
8 Municipal Solid Waste (MSW) is defined in the concession agreement as including garbage consisting of waste from households, commercial areas, markets, public places and other areas in the concession area; construction and demolition debris, garden and any vegetable waste, and any waste arising from street sweeping.
9 Case studies of TNSCB slums done as a part of this study reveal appalling conditions. The collection is irregular and cursory, with services not offered on weekends and holidays. The apartment buildings in TNSCB complexes have garbage chutes that are constantly overflowing, and are breeding grounds for cockroaches, rats, mosquitoes and other pests that enter houses through the chute. The community bins near these complexes are unapproachable, being surrounded by stagnant water and garbage. Children use this space as a toilet. The conditions of conservancy workers with TNSCB are even worse – no uniforms, gear or proper equipment.
10 It was estimated by Exnora that hardly 70-80 per cent of the garbage generated daily was collected, and the rest remained accumulated on the roadsides, or found its way into rivers, canals and tanks, posing serious environmental and public health concerns.
11 The MSW rules are a part of central legislation, and govern a subject on the concurrent list, and hence prevail over any state legislation.
12 However, a technical paper on privatisation of SWM brought out by the corporation notes that while the contract was signed well before the notification of the MSW (Management and Handling) Rules 2000, the company had been asked to implement any stipulation relating to the collection, transportation and storage of segregated waste that the rules may impose on Urban Local Bodies (Technical Paper on Privatisation of SWM in Chennai, Corporation of Chennai).
13 There have been attempts by the current ruling party – the All India Dravida Munnetra Kazhagam – to oust the private company, citing malpractice like inflation of tonnage. Similar breaches of contract in the city of Penang have been recorded by Batley 1996.
14 Environmental groups in Chennai and labour unions in Mumbai.
15 Gains of effectiveness and efficiency associated with privatisation can be attributed partly to the private sector itself, but are also contingent on the ULB's capacity to create a competitive environment with sufficient incentives to extend services to poor neighbourhoods [Batley 1996].
16 By setting policy and service standards, coordinating, financing, enabling and regulating producers. Direct provision is the act of physically producing and delivering a service [Batley 1996, 2001].
17 Refers to average quantity of waste collected each day by each worker, the average cost of collecting a particular quantity of waste and the number of vehicles required for operations [Batley 1996].
18 Batley 2001, reports similar findings – "privatisation can mean increased expenses for the state agency brought about by the need to manage the private operator, to retain a reserve force, and the inability to reduce staff in spite of lesser workload".
19 In an instance of a very successful CBO venture, the corporation of Chennai promised incentives like lowered property taxes, roadside gardens etc. The corporation has also constantly

offered support, by being very responsive to suggestions and complaints, and by stepping in when the CBO has operational difficulties. The CBO's president emphasised that the personal commitment of the corporation commissioner and chief engineer was crucial to the smooth functioning of the CBO's SWM operations.

20 It was felt by CBO members that women-run CBOs are more effective, as managing solid waste is usually a household chore, seen typically as a woman's task.

21 When Onyx took over SWM in zones 6, 8 and 10, the Exnora CBOs were rendered redundant, as their rationale for existence – garbage on the streets – disappeared with the services offered by Onyx being far more effective than the corporation's.

22 The privatisation of SWM in Hyderabad, India, initiated in 1995, was accompanied by the recruitment of 3,650 new workers. Their net wages were three times lower than that of the ULB worker, they had no non-wage benefits like pension, health insurance, paid leave, protective gear and cleaning products, no job security, etc. Many of the contractors did not even pay the statutory minimum wage of Rs 1,300 [Post et al 2003]. In the UWEP/CEE project in Bangalore, payments, working conditions, etc, varied among neighbourhoods [Muller et al 2002].

23 Pay scale starts at Rs 2,800 (the lowest cadre), with annual increments.

24 Due to bad quality of gear and equipment.

25 7,570 permanent workers, 1,660 consolidated workers and 1,666 daily wage workers. The consolidated category was formed in response to litigation by labour unions asking for permanent status for daily wage workers who have been with the corporation for an extended period of time. The consolidated workers are given a flat monthly salary of Rs 2,178 (with annual increments), and were promised permanency after three years in a consolidated position, but are yet awaiting tenure five years later. Pay scale for permanent workers ranges from Rs 2,550 to Rs 4,000, and daily wage employees are paid Rs 108 per day.

26 This is forbidden by the MSW rules.

27 Informal discussions with labour activists in Mumbai.

28 From Onyx's experiences in other countries.

29 CBO members, particularly women, are subject to taunting remarks by other residents when they collect user fees.

30 Batley (1996) identifies programmed, pragmatic and informal privatisation. The programmed privatisation involves policy decisions by the state to privatise, and pragmatic privatisation is characterised by an initial decision to involve the private sector due to necessity, that leads to a growing commitment.

31 The residents across the city were confused about what segregation actually meant; many of them are under the misconception that it implies separation of mixed waste, rather than collection of different kinds of waste in separate containers.

32 The installation of systems that facilitate easy and convenient but appropriate disposal of waste is of prime importance to temper any burden (for example, fines) falling on the poor because of the MSW rules.

33 Maclaren (1991) theorises that the incentive for a waste generator to follow the 3R hierarchy (reduce, reuse and recycle) varies by economic sector, with factors that motivate participation classified as economic, environmental and social. For the industrial sector, the incentive to adopt the 3R strategies is primarily economic; for the household, the incentive will vary. Recycling may be mandatory. For other families, recycling may mean economic gains. Others may be socially and environmentally conscious, or may wish to conform to norms laid down by CBOs.

34 Most conservancy workers (and citizens) in Chennai were unaware of the notification of the MSW rules at the time of the study.

35 The city of Guelph in Canada gradually increased landfill-tipping charges from no charge in 1985 to Can $ 92 per tonne in 1991. There was a corresponding decrease in the waste generation rates as residents tried to avoid disposal fees. The city of Date-shi in Japan had a similar experience.

36 This study revealed that the attitude that waste is not one's responsibility after generation was widely prevalent among citizens.

37 However, it is vital to keep in mind that waste generation rates increase with increase in income; therefore, user fees can be expected to be minimal for low income families, and then increase as one goes up the income ladder.

38 No mechanisms have been laid down for enforcement of segregation, composting and recycling, role of informal sector and urban poor has been ignored, focus is on disposal as a means of managing waste, with technologies like incineration and waste-to-energy sanctioned despite overwhelming evidence that they are hazardous.

39 It is important to understand that while recycling is an essential component of SWM, it is not the best option either as most recycling processes result in polluting emissions. In addition, most products are not recycled – they are only "downcycled", as a portion of the resource is lost as emissions. Promoting recycling very heavily may also encourage increased generation of recyclable waste like plastic, something that is not desirable.

40 These do not prevent pollution – they just convert gaseous emissions to water borne, solid and ash wastes that are equally toxic. Of primary concern are dioxins, furans, suspended particulate matter and heavy metals, all of which are released during incineration of wastes.

41 Effective implementation of the current MSW rules will reduce the urban poor's access to waste, thus impinging on their livelihoods.

42 This is a concept that aims to reduce generation of waste by placing the obligation of reducing environmental impacts of products at each stage of the product's lifecycle, including final disposal, on the manufacturer. This responsibility is extended to all those involved in the production chain, from manufacturers, suppliers, retailers and consumers to disposers of products. For instance, in India, it is obligatory for battery manufacturers to take back certain types of batteries after use for recycling and safe disposal.

43 The wastes of one industry are often raw material for another; thus waste exchanges can help reduce the quantities of waste going for disposal. This can also be applied at the domestic level, avoiding the trashing of consumer products.

44 The products that pass an environmental life cycle analysis are given environmentally friendly designation, allowing consumers to exercise an informed environmentally friendly choice.

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